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The results of a statistical analysis of 498 school districts are analyzed in terms of the fiscal responsibility of school boards. Since a method of budget approval is being examined, the criterion adopted (composite fiscal performance) is one that measures the performance of the school board in obtaining funds to operate the schools. Composite fiscal performance is made up of ten measures derived from net current expenditure per pupil, teachers' salaries, amount raised locally, and fiscal growth indices. Various independent variables including fiscal independence, fiscal dependence, public vote in budget approval, and tax limitation were examined in relation to composite fiscal performance. The results show that, in obtaining funds locally, school districts with fiscally independent boards operating without tax limits are superior to school districts with fiscally dependent boards operating with tax limits. (HW)

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Tax Limitation and Fiscal Responsibility of School Boards

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Data from 1,222 city school districts in the 48 continental states of the United States have recently been statistically analysed in terms of the fiscal responsibility of school boards. The results of one of these analyses is reported below; they tend to show that, in obtaining funds locally, school districts with fiscally independent boards operating without tax limits are superior to school districts with fiscally dependent boards operating with tax limits.

This analysis had to be made on fewer than the full sample of districts. Only 498 could be used. These were the school districts coterminous with some other unit of local government. As is well known, certain kinds of data, such as census information and estimates of per capita income, are virtually inaccessible for a major fraction of U. S. school districts—are not coterminous with any data collection area or combination of areas.

In a previous report in these pages,[1] a simple comparison was made showing the differences of means on some 35 variables among the 1,222 independent, dependent, public vote, and tax-limit school districts that formed the basic sample. It was not possible to control these comparisons by wealth, socio-economic status, and population characteristics for the reasons given.

It is well established, however, that local district wealth, as measured by an index like property tax value per pupil or income per capita, is the overriding determiner of fiscal performance, as measured by an index like net current expenditure per pupil.[2] Hence some form of multivariate analysis should be attempted involving at least those districts that are coterminous with standard data collection areas—even if the introduction of another uncontrolled factor, "coterminousness," raises a question about the generality of the results. In order to use a measure of wealth based upon income, 69 per cent of the fiscally independent districts of the original sample of 1,222 had to be eliminated because they were not coterminous with the data collection area; only 41 per cent of the fiscally dependent districts, however, had to be eliminated for this reason. This leaves us with 260 independent districts and 238 dependent districts.

This looks like a fairly even division until one remembers: (1) the great majority of school districts of the country are fiscally independent; (2) the proportion of dependent districts is greater among larger districts; (3) most "coterminous" districts are fiscally dependent —coterminous, that is, with a county or municipality. Thus the restrictions placed upon the analysis by the exigencies of data collection probably introduce selective factors that are beyond control. However, what is lost

[1] "New Light on the Size Question," *IAR Research Bulletin*, Vol. 6, No. 2, February, 1966, p. 4.

[2] Truman M. Pierce, *Controllable Community Characteristics Related to the Quality of Education*. New York: Teachers College Press, Columbia University, 1947.

TABLE

SIGNIFICANCE LEVELS OF THE EFFECTS OF SIZE, FISCAL CONTROL PATTERNS AND INCOME ON COMPOSITE FISCAL PERFORMANCE INDEX

Independent Variables	Critical Levels of Significance in Predicting Variations in the Composite Fiscal Performance Index
Linear Effective Buying Income per Capita, 1962	.00**
Linear Dependent/Independent Effect	.85
Linear Non-Tax Limit/Tax Limit Effect	.01**
Linear Size Effect	.63
Quadratic Size Effect	.72
Linear Dependent/Independent, Non-Tax Limit/Tax Limit Effect	.05*
Linear Dependent/Independent, Size Effect	.44
Linear Non-Tax Limit/Tax Limit, Size Effect	—***
Linear Dependent/Independent, Non-Tax Limit/Tax Limit, Size Effect	—***

* Statistically significant
** Highly significant
*** No computer output due to insignificance

by the elimination of the non-coterminous districts would probably tend to emphasize the observed differences rather than cloud them; this is because a large proportion of the highest fiscally performing districts in the country had to be eliminated, e.g., the non-coterminous districts in such states as New York and California where support of education is less dependent upon local wealth than is usual in the United States.

Composite Fiscal Performance

Since a method of budget approval is being examined, the criterion adopted for this analysis is one that measures the performance of the school board in obtaining funds to operate the schools. *Composite fiscal performance,* as the criterion is called, is made up of ten measures derived from net current expenditure per pupil, teachers' salaries, amount raised locally, and fiscal growth indices which appeared in the first rotation in a factor analysis. Various independent variables—including fiscal independence, fiscal dependence, public vote in budget approval, and tax limitation—were examined in relation to composite fiscal performance.

An initial examination of significance levels appears in the Table. Several indications are immediately apparent. In the first place, of all the independent variables, wealth accounts for more of the variance than any other, having a level of significance somewhat smaller than .005. (All decimals were rounded at two places in this program.) This was to be expected in view of the zero order correlations obtained in a number of other studies in which the relation between expenditure level and community wealth (tax base per pupil) is described by a coefficient of the order of .86.[8]

The Table also shows that the matter of tax limitation is also highly significant (at the .01 level), and that the factor of independence/dependence is not significant (being at the .85 level). However, when independence/dependence is combined with tax limitation, the result is a significance level of .05. This is irrespective of the high reliability of the tax limitation variable by itself.

It will be seen that neither linear size effect nor quadratic size effect is significant. This is counter to the implication in the previously noted *Bulletin* article that extreme school district size influences fiscal performance irrespective of the manner of budget approval. It must be pointed out, however, that in the present statistical analysis, only 17 districts could be termed "extreme" in

8 Donald H. Ross, ed., *Administration for Adaptability.* New York: Metropolitan School Study Council, 1958, Table D, p. 615.

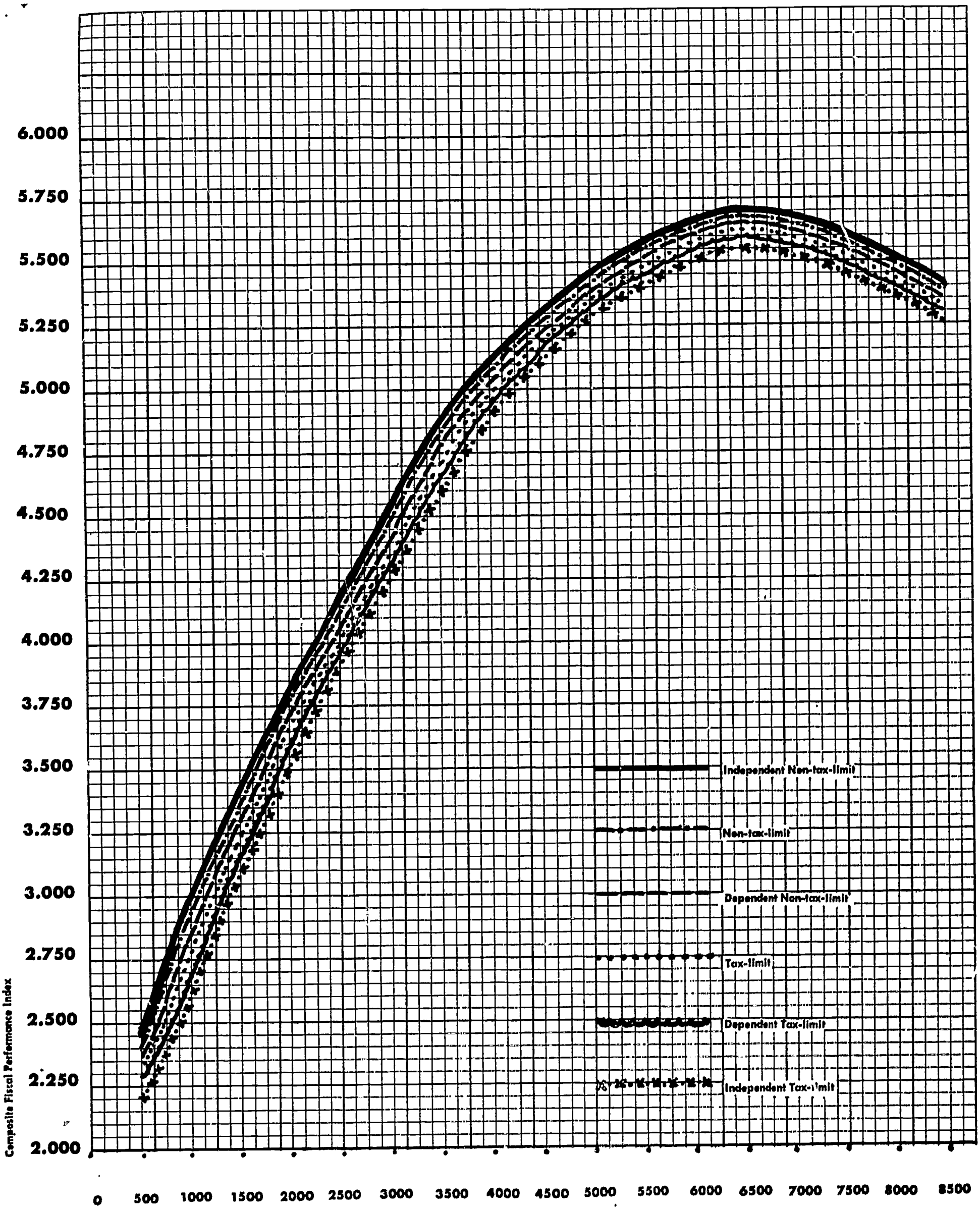

Figure #1: Relationship between Composite Fiscal Performance Index and Effect Buying Income Per Capita by Patterns of Fiscal Control.

size. Furthermore, all but two are either dependent or tax limited or both. Consequently, the prior estimation of the effect of extreme size, based upon hints obtained from a comparison of differences of means by size groups, would appear to remain at least an open question.

A multivariate program was written in which the budget approval variables were each measured against composite fiscal performance and wealth. The effect was to hold wealth constant at each level of fiscal performance for each method of budget approval. The results of this analysis are graphed in the Figure. The *composite fiscal performance index* is a computed figure derived from the combination of the ten fiscal variables which compose the index. The wealth factor is *effective buying income per capita for 1962* obtained from *Sales Management.*[4] The variables which define the different methods of budget approval are plotted as separate curves and labeled. In all cases, as wealth increases, composite fiscal performance increases. Fiscal performance rises to a plateau and levels off at a figure somewhat above an effective buying income of $5,000 per capita. What the graph seems to be saying, in sum, is that schools in the most wealthy communities tend to be on a par financially. Put another way, if one were to ask, "How much should schools be spending in order to have the best we are now capable of buying for elementary and secondary education?" the answer would appear to be, "What those communities are spending that have between $5,000 and $8,500 per capita buying income." For the long declining tail to the left of the graph can be nothing other than the trail of unequalization in American education. If educational support were perfectly equalized, all the curves would be straight horizontal lines across the graph. The only approach to that condition occurs at the very highest levels of local wealth.

Fiscal Responsibility and Tax Limitation

Specifically, the Figure shows the curve for the independent, non-tax-limit districts lying on top. Whatever the wealth, the composite fiscal performance of this group of school districts is superior. The curve for the dependent tax-limit districts lies near the bottom. Interestingly enough, it is the curve of the independent, tax-limit districts that actually shows up most poorly on composite fiscal performance, while that of the dependent, non-tax-limit districts occupies the middle range.

Thus it would appear that fiscal independence is the superior arrangement *if* the board may operate without a tax-limit. Since, in the absence of tax limits, fiscally independent school boards almost universally employ some form of public vote or approval of the school budget or tax rate, it would appear that this method is to be preferred where the criterion is the school board's ability to meet the competition of other publicly supported agencies in a period of rapid economic growth and inflation.

On the other hand, fiscal independence is the *least* preferable arrangement where there is a tax limit. The effect of a tax limit is to hold down expenditures in a period of rising costs. We see that tax limitation occurs in the three lowest curves in the Figure. The alternative to remaining below the tax limit is, in most instances, to petition the public for an "override." Where public vote is not a regularized procedure, boards appear to shrink from public exposure. Under fiscal dependence, the regularized procedure is to obtain approval of some other agency of local government, such as a city council, and it would appear that with a tax limitation this is the superior arrangement.

Dependence is not the more effective arrangement so far as maintaining support of the schools is concerned. The argument for it has been that the requirements of all local services can be balanced—streets, sewers, water, sanitation, schools, et al. We see that that is about what happens. Education takes its chances with municipal services, whether with tax limits or without, but the latter, at least for schools, appears to be the superior arrangement.

It is regrettable that the exigencies of data availability require the elimination of a large proportion of fiscally independent school districts from the original sample. This situation, a result of "non-coterminousness," cannot be allowed to continue to hamper investigations of this sort. Consequently, Norman Walsh is at work on a method designed to overcome this difficulty. A report of his proposals will appear in a later issue of *The Bulletin.*

[4] Sales Management, Inc., "Survey of Buying Power," *Sales Management*, Vol. 40, No. 12, June 10, 1963, pp. 155-354.